

Appendix II
Summary Report
Sea Turtle Monitoring
3/18/95 to 4/12/95

May 1995

**MONITORING OF SEA TURTLE ENTRAINMENT BY HOPPER DREDGES
MISSISSIPPI RIVER GULF OUTLET CHANNEL**

Deborah Shafer and Dave Nelson (CEWESER-C)
Coastal Ecosystem Branch, Environmental Laboratory
USAE Waterways Experiment Station
Vicksburg, MS 39180

INTRODUCTION

Background

Surveys have documented that large numbers of sea turtles, including the endangered Kemp's ridley (*Lepidochelys kempii*) inhabit coastal Louisiana (Landry et al. 1994, Renaud et al. 1993, 1994). Many of these are juveniles or subadults. These turtles appear to congregate near jetties, channels, and passes, both dredged and un-dredged. Turtles in such areas are likely to be susceptible to entrainment by hopper dredging.

To address concerns about sea turtle entrainment by hopper dredges, New Orleans District requested that Waterways Experiment Station (WES) provide expertise and personnel to assist in the development and implementation of a sea turtle entrainment monitoring program for dredging operations in the Mississippi River Gulf Outlet Channel, Louisiana.

The Endangered Species Observer Program

The Endangered Species Observer program was initiated by National Marine Fisheries Service (NMFS) in order to fulfill the requirements of the Endangered Species Act of 1973.

The following report describes the results of monitoring sea turtle entrainment during dredging in the Mississippi River Gulf Outlet Channel by the dredge McFarland from 18 March to 12 April 1995.

METHODS

Monitoring Entrainment

Inflow screens were inspected by the turtle observer during each return trip from the disposal site. The draghead was also inspected whenever it was brought onboard the dredge and sea conditions allowed for safe access to the draghead. Turtle observers removed debris from the screens with the assistance of the crew. When possible, observers used binoculars to scan the water for turtles at the surface. Observations made by the turtle observers were recorded on a standard data sheet.

Safety precautions were observed during all phases of shipboard operation, particularly during screen inspection and removal of debris. Each turtle observer was given a safety briefing prior to the initiation of work. Turtle observations were made on a 24 hour basis during the dredging period. In general, the turtle observers worked on a 6 hours on-duty - 6 hours off-duty schedule, however, adjustments in individual work schedules may have been varied due to the dredge schedule, safety, weather, etc.

Permits

Monitoring was conducted under National Marine Fisheries Endangered Species Permit # 777, issued to David A. Nelson, USAE Waterways Experiment Station.

Coordination of Work

All aspects of the study were coordinated with the U.S. Army Corps of Engineers District, New Orleans, the National Marine Fisheries Service, state resource agencies, and other appropriate technical personnel.

RESULTS

The dates of monitoring were 18 March-28 March and 1 April-12 April 1995. Tables 1 and 2 contain abbreviated observer notes for each day of monitoring. A total of 26 days were spent on board the dredge. Round-the-clock monitoring was conducted during the 22 days of actual dredging activity. A total of 290 loads were monitored during the first session; 298 loads were monitored during the second session.

Water temperatures ranged from 62° to 70° F. (17° - 22° C.) during the monitoring period. Turtle movements in the Gulf have

been shown to be significantly correlated to water temperature (Renaud and Carpenter 1995). A Kemp's ridley turtle released in Sabine Pass, Texas, was tracked by satellite telemetry from July 1993 to July 1994. This turtle was observed to avoid water temperatures less than 17° C. during the winter months, returning to warmer nearshore waters in March (Renaud, Carpenter, and Williams 1995). Aerial surveys on the Atlantic coast have reported that turtles generally follow warm water circulation patterns; however, turtles have been seen in waters as cold as 8° C. (Epperly et al. 1995). The water temperatures during the monitoring period (17° - 22° C.) are well within the range of thermal tolerance for sea turtles. However, no turtles were observed in the water or in the hopper during the monitoring period.

The amount of debris collected on the screens was minimal in the dredging area. On only one occasion was there a slight delay in the work schedule in order to clean the screens of excess debris. Rays (species unknown) were the organism most frequently encountered on the screens. Considering the relatively small amount of debris usually present on the screens, turtles or turtle parts, if present, should have been readily visible. No turtles or suspected parts thereof were found during the monitoring period. Data sheets are included in Appendix A.

ACKNOWLEDGMENTS

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John and Deborah Keinath of Albatross Biological Consultants, Inc., and Charles Maley provided sea turtle observer services on board the dredge *McFarland*. The crew of the dredge *McFarland* and the Venice Area Sub-Office also provided assistance during the monitoring program.

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TABLE 1: Session 1(Mar. 18 - 28) Notes

DATE	TIME	NOTES
3/18/95	0300-2359	Basket: sand, debris, rays, clean. Water Temperature: 62.0° F. Weather: wind NE 5-10 knots.
3/19/95	0000-2359	Basket: mud, debris, rays, clean.
	0911-0944	Draghead brought on board for inspection.
	1320-1352	Fire Drill-No Dredging.
	1713-1737	Water Temperature: 65-70° F. Weather: mostly clear and calm.
3/20/95	0000-2359	Basket: debris, sludge, rays, clean.
	0508-0544	Dredging stopped due to fog.
	0645	Dragheads brought on board.
	1153-1224	Resumed dredging.
3/21/95	0000-2359	Basket: sludge, debris, glass, rays, clean, fishhead(unknown), fish(unknown). Weather: calm and hazy then clearing
3/22/95	0000-2030	Basket: debris, sludge, rays, blue crab Weather: clear and calm - some haze then fog.
	0226-0245	Starboard draghead would not go down.
	1730-1811	Moved out of channel to let ship pass. Resumed dredging.
	2030-2359	Fogged in and anchored.
3/23/95	0000-2039	Basket: sludge, debris, rays, mud.
	0035-0106	Resumed dredging after fog lifted.
	0122-0133	Anchored after fog moved in again.
	0753-0819	Resumed dredging.
	2011-2039	Fog rolling in fast at 2031. Anchored at 2115.

TABLE 1: Session 1 (Mar. 18 - 28) Notes (continued)

DATE	TIME	NOTES
3/24/95	0000-2359	Basket: clay, debris, sludge, clay balls, clean. Weather: calm, hazy then clear.
	0718-2359	Resumed dredging after fog lifted.
3/25/95	0000-2359	Basket: crab, rays, clay, debris. Weather: clear and calm to choppy 2' seas.
3/26/95	0000-2359	Basket: clay balls, clean. Weather: clear and calm then swells and choppy seas at times. Some light haze and fog.
	1132-1200	Safety meeting.
3/27/95	0000-2359	Basket: clay, clean. Weather: clear with 3' swells, then partly cloudy and hazy, calm at times.
3/28/95	0000-2359	Basket: fish (red drum, jack), rays Weather: overcast with swells. Rain and lightning at end of day.
3/18/95 -> 3/28/95 END OF SESSION #1		290 Loads Dumped

TABLE 2: Session 2 (Apr. 1 - 12) Notes

DATE	TIMES	NOTES
4/1/95	2025-2359	Weather: clear and calm.
4/2/95	0000-2359	Basket: rays, clean. Weather: clear and calm, then winds picked up to 12-15 kts. Change to Daylight Savings Time. Water Temp. 65.0° F.
4/3/95	0000-2359	Basket: rays, redfish, mud, clay balls, clean. Weather: clear and calm, then SE winds to 20 knots with 2' seas.
4/4/95	0000-2359	Basket: rays. Weather: cloudy, winds SW 15-20 knots, some rain and 4' swells.
4/5/95	0000-2359	Basket: rays. Weather: rainy, SE winds about 20-30 knots and 6-8' swells.
4/6/95	0000-2359	Basket: rays, clay, clay balls, mud, clean. Weather: Overcast with NE winds at 15-20 knots; then clear with 2-3' swells.
4/7/95	0000-2359	Basket: shark, clay, mud, rays, mud balls. Weather: partly cloudy, calm with 15 knot winds.
4/8/95	0000-2359	Basket: rays, mud, debris, clay, flounder. Weather: clear and calm with SE winds at 10 knots.
4/9/95	0000-2359	Basket: rays, mud, debris, clay, flounder. Weather: clear and calm with SE winds at 15-20 knots.

TABLE 2: Session 2 (Apr. 1 - 12) Notes (continued)

DATE	TIME	NOTES
4/10/95	0000-2359	Basket: mud, rays, clay, debris Weather: Clear and calm, then rain, lightning, 6' swells and 40 knot winds.
	0358-0426	Slight delay to clean debris from starboard basket.
4/11/95	0000-2359	Basket: clay. Weather: clear and calm, then 40 knot winds with rain, lightning, and 6' swells.
4/12/95	0000-0845	Weather: cease operation at 0845 due to rough seas, returned to Venice.
END OF SESSION #2 4/1/95 -> 4/12/95		298 Loads.

* Four load numbers on the data sheets (#177, #195, #250, and #258) were written down twice.